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# BMW Multi Tool User Manual



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# 1. Safety Precautions and Warnings

**To prevent personal injury or damage to vehicles and/or the tool, read this instruction manual first and observe the following safety precautions at a minimum whenever working on a vehicle:**

- Always perform automotive testing in a safe environment.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well ventilated work area: Exhaust gases are poisonous.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the tool dry, clean, free from oil/water or grease. Use a mild detergent on a clean cloth to clean the outside of the scan tool, when necessary.



## 2. General Information

**Thank you for choosing BMW Multi Tool.**

This manual includes the use of equipment notes, please read this manual carefully before use so that you can correctly use it.

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## 3. Hardware Overview

### 3.1. Tool Description



ITEM	Description
<b>1</b>	<b>OBD II CONNECTOR</b> Connects the tool to the vehicle's Data Link connector (DLC).
<b>2</b>	<b>Dongle</b> USB dongle.
<b>3</b>	<b>USB CONNECTOR</b> Connects the tool to the PC/Laptop through USB Cable.
<b>4</b>	<b>Programmer</b> Program keys.
<b>5</b>	<b>Programmer Female Pin</b> Connects programmer to device.
<b>6</b>	<b>Programmer Male Pin</b> Connects programmer to device.



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### 3.2. Specifications

ITEM	Description						
Operating Temperature	-20 to 70 °C ( -4 to 158 °F )						
Storage Temperature	-40 to 85 °C ( -40 to 185 °F )						
Diagnostic Interface	16 PIN						
USB Interface	USB 2.0						
Power	DC 5 V - 12 V						
Consumption	1 W						
Dimensions	<table border="1"><thead><tr><th>Length</th><th>Width</th><th>Height</th></tr></thead><tbody><tr><td>95 mm(3.74")</td><td>49 mm(1.93")</td><td>28 mm(1.10")</td></tr></tbody></table>	Length	Width	Height	95 mm(3.74")	49 mm(1.93")	28 mm(1.10")
Length	Width	Height					
95 mm(3.74")	49 mm(1.93")	28 mm(1.10")					
Net Weight	85 g						
Gross Weight	223 g						



### 3.3. System Requirements

#### PC/Laptop Minimum Specification

	Minimum Specification	Recommended Specification
<b>CPU</b>	Pentium 3/1GHz or above	Pentium 4/1.6GHz or above
<b>Memory(RAM)</b>	512M or above	1G or above
<b>HDD</b>	40G or above	60G or above
<b>Display</b>	800 x 600 or above	1024 x 768 or above
<b>OS</b>	Win98/2000/XP/Vista	WinXP
<b>Port</b>	USB	USB



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## 4. Software Overview

### 4.1. Overview

BMW Multi Tool includes forth parts, hardware device, dongle, programmer, software. Before running software you must connect dongle and hardware device to computer.

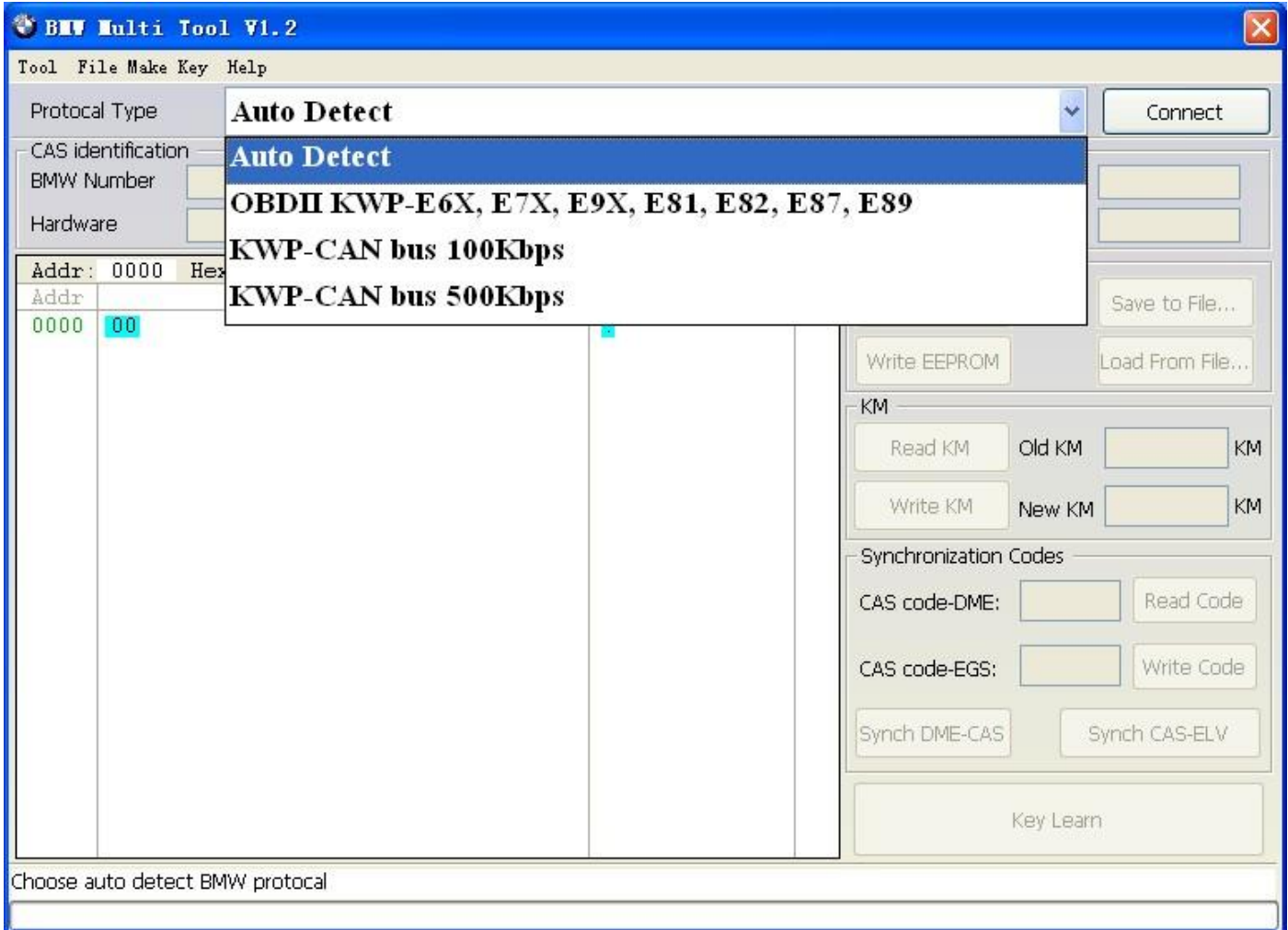




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## 4.2. Function

Main window follows:



### i. Menu

**Tool:** you can choose language here, support “English” and “Chinese Simplified” Restart software to apply your settings.

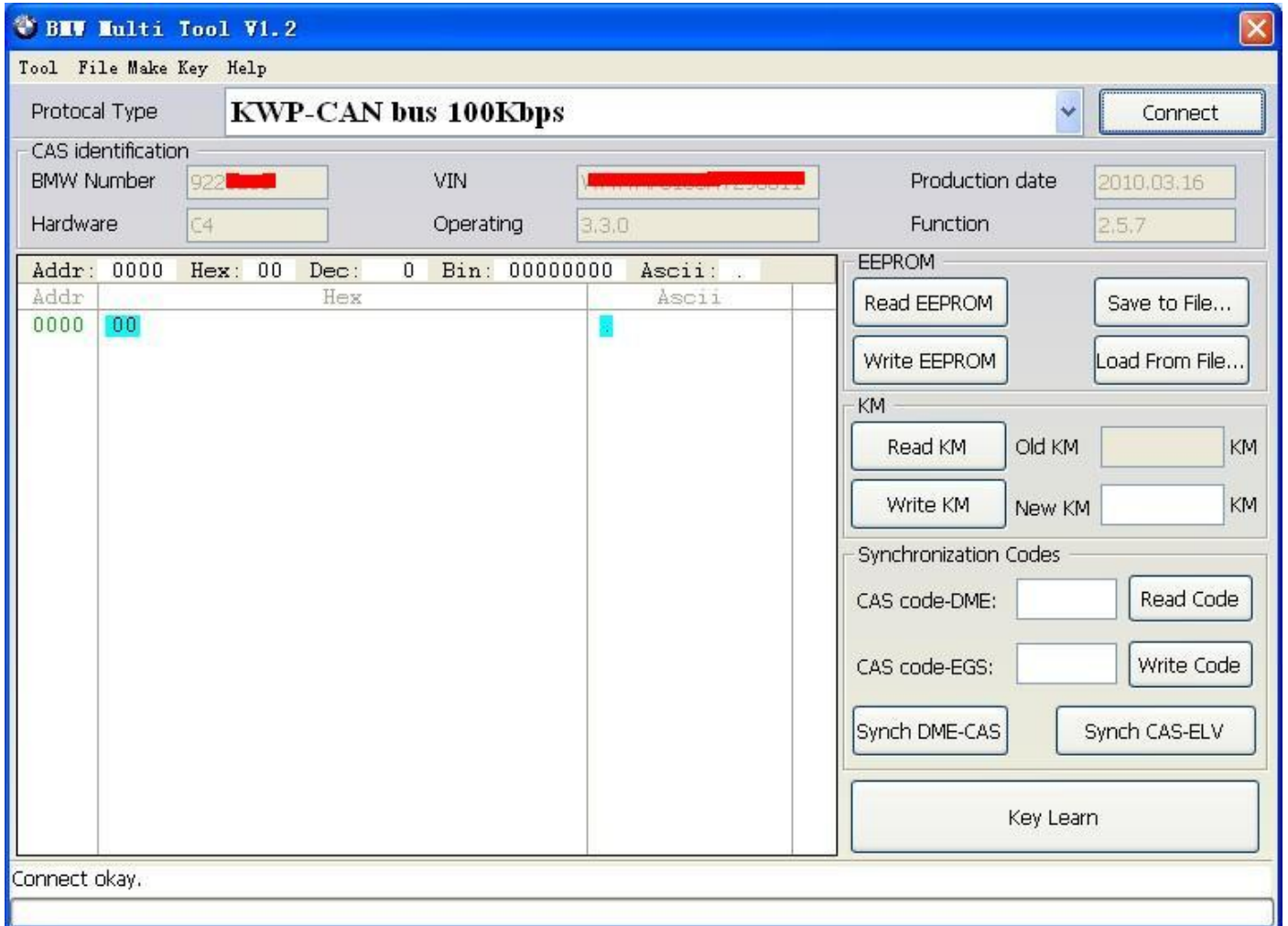
**File Make Key:** you can prepare dealer key with EWS and CAS EEPROM dump.

**Help:** Device update. You can get your device and dongle id version and update it.

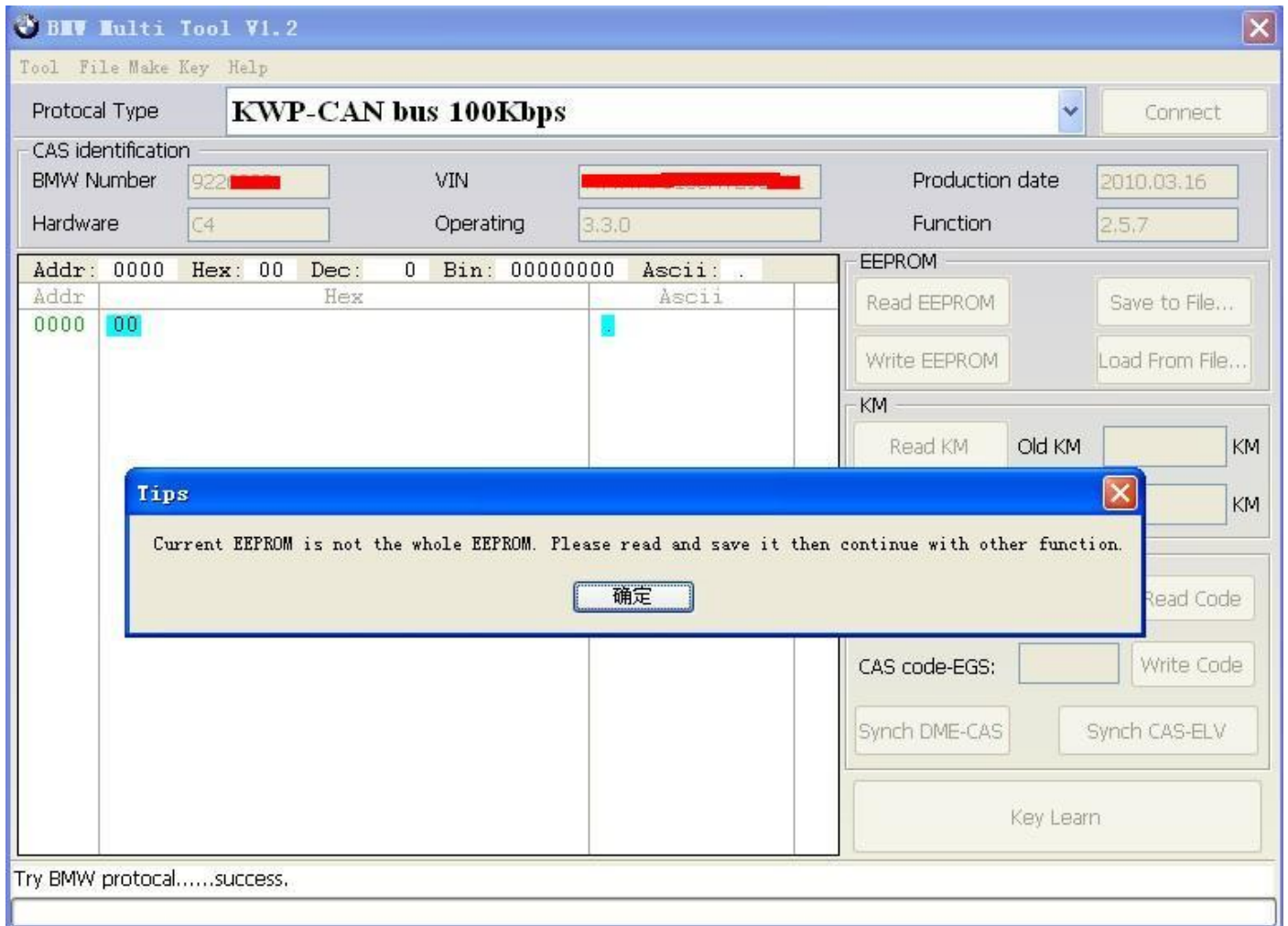


ii. Protocol type:

Now BMT support there type of protocol: KWP-CAN BUS 100Kbps, KWP-CAN BUS 500Kbps, KWP-2000. "Auto Detect " function can help you to choose the right protocol. After choose protocol okay, then press "Connect". If connected success. All CAS info will display in CAS Identification. Include CAS number, VIN, production date, etc. see the picture follows:



- iii. EEPROM Function: Read EEPROM, Write EEPROM, Save File, Load File...
  1. You should backup the CAS EEPROM before prepare dealer key. After succeed read EEPROM, please save it as back file. This step is very important.
  2. Now can't read the whole EEPROM for cas3 system. But the main section is contained. It should be saved. When you read CAS EEPROM, it will give tips as follow(Press ok to continue):





3. After success read it, you will get:

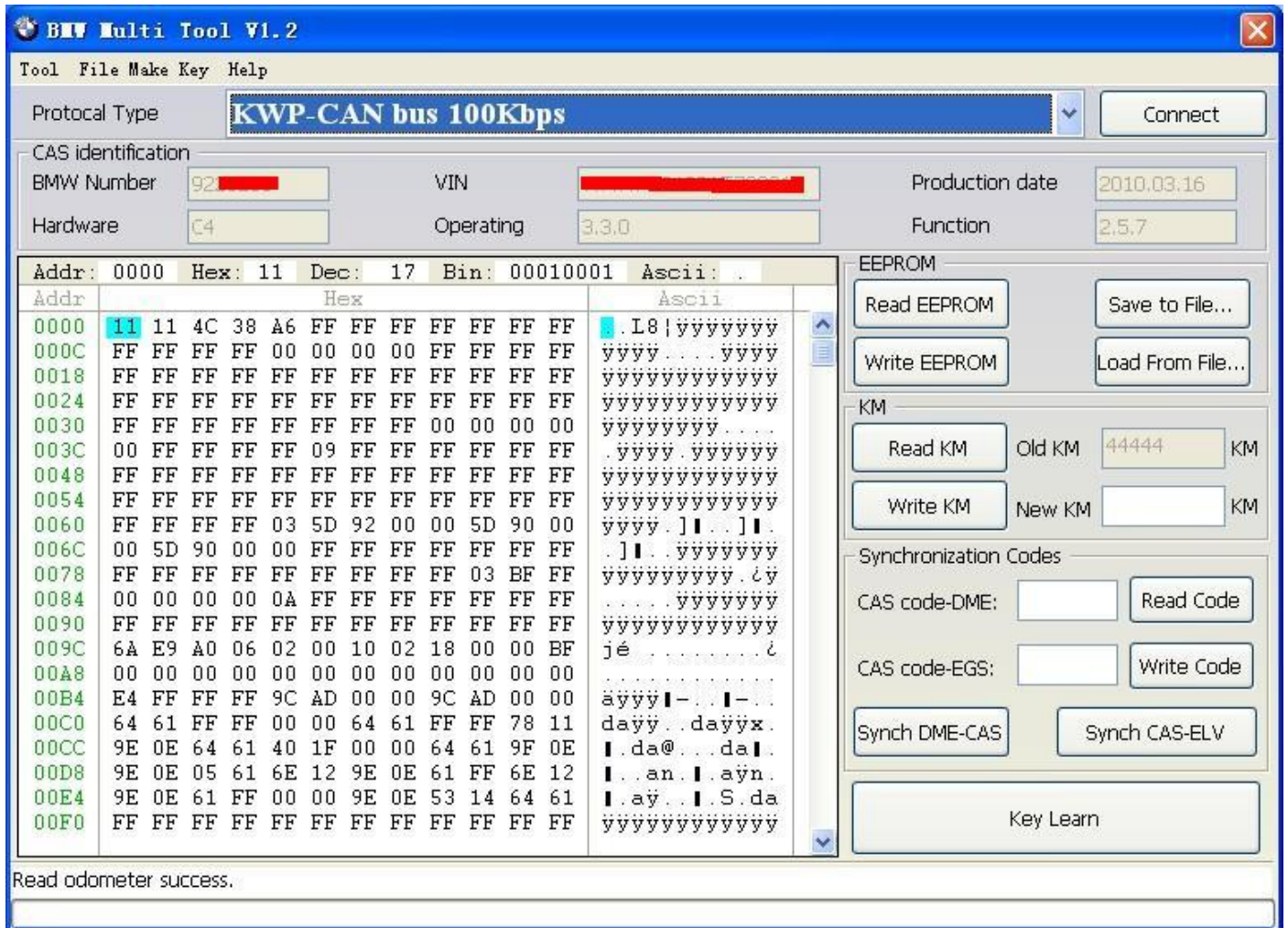
The screenshot shows the BMW Multi Tool V1.2 interface. The 'Protocol Type' is set to 'KWP-CAN bus 100Kbps'. The 'CAS identification' section shows fields for BMW Number (92...), VIN, Production date (2010.03.16), Hardware (C4), Operating (3.3.0), and Function (2.5.7). A table displays EEPROM data with columns for Addr, Hex, Dec, Bin, and Ascii. The data starts at address 0000 with hex value 11. The Ascii column shows characters like 'L8|', 'y', 'jé', 'da@', 'an', 'ay', and 'S.da'. On the right, there are buttons for 'Read EEPROM', 'Write EEPROM', 'Read KM', 'Write KM', 'Synchronisation Codes' (CAS code-DME, CAS code-EGS), and 'Key Learn'. A status bar at the bottom indicates 'Reading data success.'

Addr	Hex	Dec	Bin	Ascii
0000	11 11 4C 38 A6 FF FF FF FF FF FF	17	00010001	.L8 yyyyyyyy
000C	FF FF FF FF 00 00 00 00 FF FF FF FF			yyyy...yyyy
0018	FF FF FF FF FF FF FF FF FF FF FF FF			yyyyyyyyyyyy
0024	FF FF FF FF FF FF FF FF FF FF FF FF			yyyyyyyyyyyy
0030	FF FF FF FF FF FF FF FF 00 00 00 00			yyyyyyyy....
003C	00 FF FF FF FF 09 FF FF FF FF FF FF			.yyyy.yyyyyy
0048	FF FF FF FF FF FF FF FF FF FF FF FF			yyyyyyyyyyyy
0054	FF FF FF FF FF FF FF FF FF FF FF FF			yyyyyyyyyyyy
0060	FF FF FF FF 03 5D 92 00 00 5D 90 00			yyyy.][].]
006C	00 5D 90 00 00 FF FF FF FF FF FF FF			.] .yyyyyyyy
0078	FF FF FF FF FF FF FF FF FF 03 BF FF			yyyyyyyyy.ÿ
0084	00 00 00 00 0A FF FF FF FF FF FF FF			...yyyyyy
0090	FF FF FF FF FF FF FF FF FF FF FF FF			yyyyyyyyyyyy
009C	6A E9 A0 06 02 00 10 02 18 00 00 BF			jé.....é
00A8	00 00 00 00 00 00 00 00 00 00 00 00			.....
00B4	E4 FF FF FF 9C AD 00 00 9C AD 00 00			äyy ---
00C0	64 61 FF FF 00 00 64 61 FF FF 78 11			dayy..dayyx.
00CC	9E 0E 64 61 40 1F 00 00 64 61 9F 0E			].da@...da].
00D8	9E 0E 05 61 6E 12 9E 0E 61 FF 6E 12			].an.].ayn.
00E4	9E 0E 61 FF 00 00 9E 0E 53 14 64 61			].ay...].S.da
00F0	FF FF FF FF FF FF FF FF FF FF FF FF			yyyyyyyyyyyy

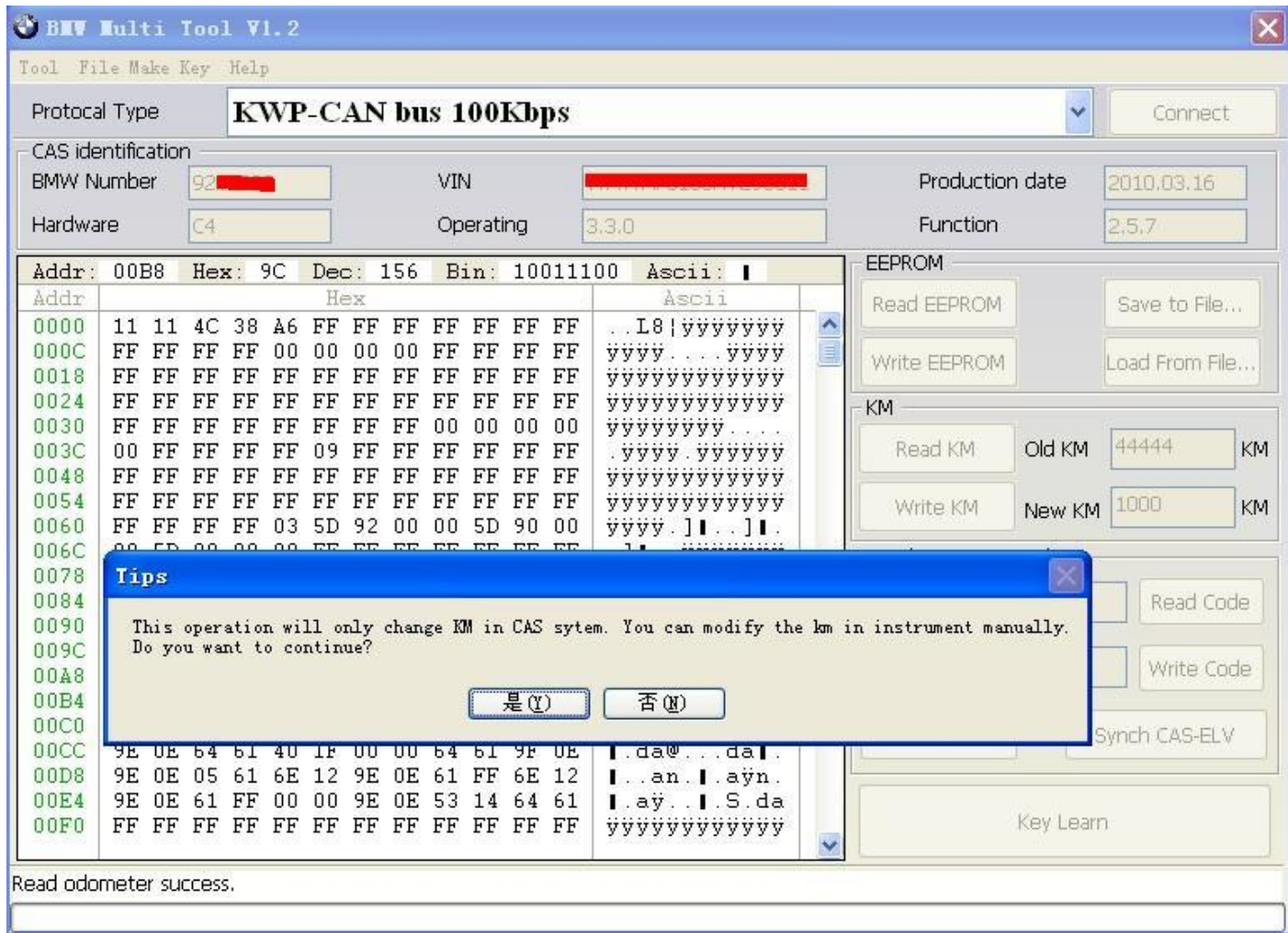
4. Write EEPROM function is only support CAS1, CAS2 system. Doesn't support write to cas3 system.



- iv. **Odometer: Support read and change KM stored in CAS system. Don't support to change KM in instrument. If you want to change the KM display in instrument. You should change KM in CAS system first. Then modify the KM in instrument manually. Read KM :**



When you try to write KM to CAS system, you will get the following tips: Press OK to continue.



**BMW Multi Tool V1.2**

Tool File Make Key Help

Protocol Type: **KWP-CAN bus 100Kbps** Connect

CAS identification

BMW Number: 92... VIN: ... Production date: 2010.03.16

Hardware: C4 Operating: 3.3.0 Function: 2.5.7

Addr	Hex	Ascii
0000	11 11 4C 38 A6 FF FF FF FF FF FF FF	..L8 yyyyyyyy
000C	FF FF FF FF 00 00 00 00 FF FF FF FF	yyyy...yyyy
0018	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0024	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0030	FF FF FF FF FF FF FF FF 00 00 00 00	yyyyyyyy...
003C	00 FF FF FF FF 09 FF FF FF FF FF FF	.yyyy.yyyyy
0048	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0054	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0060	FF FF FF FF 03 5D 92 00 00 5D 90 00	yyyy.] .].
006C	00 5D 90 00 00 FF FF FF FF FF FF FF	.] .yyyyyy
0078	FF FF FF FF FF FF FF FF 03 BF FF	yyyyyyyy.ÿ
0084	00 00 00 00 0A FF FF FF FF FF FF FF	...yyyyyy
0090	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
009C	6A E9 A0 06 02 00 10 02 18 00 00 BF	jé.....è
00A8	00 00 00 00 00 00 00 00 00 00 00 00	.....
00B4	E4 FF FF FF 9C AD 00 00 9C AD 00 00	äyy -. -.
00C0	64 61 FF FF 00 00 64 61 FF FF 78 11	dayy..dayyx.
00CC	9E 0E 64 61 40 1F 00 00 64 61 9F 0E	.da@...da .
00D8	9E 0E 05 61 6E 12 9E 0E 61 FF 6E 12	..an..ayn.
00E4	9E 0E 61 FF 00 00 9E 0E 53 14 64 61	..ay...S.da
00F0	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy

EEPROM

Read EEPROM Save to File...

Write EEPROM Load From File...

KM

Read KM Old KM: 44444 KM

Write KM New KM: 1000 KM

Synchronization Codes

CAS code-DME:  Read Code

CAS code-EGS:  Write Code

Synch DME-CAS Synch CAS-ELV

Key Learn

Writing data success.



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v. Synchronization Codes:

- 1、CAS3 code-DME 、CAS3code-EGS: Read and write DME and EGS code stored in CAS3 system.
- 2、Synchronize DME and CAS— this function will be useful while prepare dealer key or any other operation which cause can't start the engine.
- 3、Synchronize CAS and ELV — this function can help clear wheel errors.

The screenshot shows the BMW Multi Tool V1.2 interface. At the top, the protocol is set to 'KWP-CAN bus 100Kbps'. The vehicle identification section includes fields for BMW Number, VIN, Production date (2010.03.16), Hardware (C4), Operating (3.3.0), and Function (2.5.7). The main data area displays a hex dump of EEPROM data starting at address 005D. The data shows various hexadecimal values and their corresponding ASCII representations, including characters like 'L8', 'da@', 'an', 'ayn', and 'S.da'. On the right side, there are control buttons for 'Read EEPROM', 'Write EEPROM', 'Save to File...', and 'Load From File...'. Below these are 'Read KM' and 'Write KM' buttons with input fields for 'Old KM' (44444) and 'New KM' (1000). The 'Synchronization Codes' section contains 'CAS code-DME' (4C38) and 'CAS code-EGS' (1111) fields, along with 'Read Code' and 'Write Code' buttons. At the bottom, there are 'Synch DME-CAS' and 'Synch CAS-ELV' buttons, and a 'Key Learn' button. A status bar at the bottom left indicates 'Reading data success.'





## vi. Key Learn

**Key Learn** ✖

General info

Key cutting code:     CAS remote control frequency:     Current key in ignition switch is:

Key position Number	Remote control				Immobilizer							
	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID9	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID10	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Get Key Info

Save Key Info

Make Dealer Key

Enable Key

Clear DTC

Write Key Info

Load Key Info

Add Key

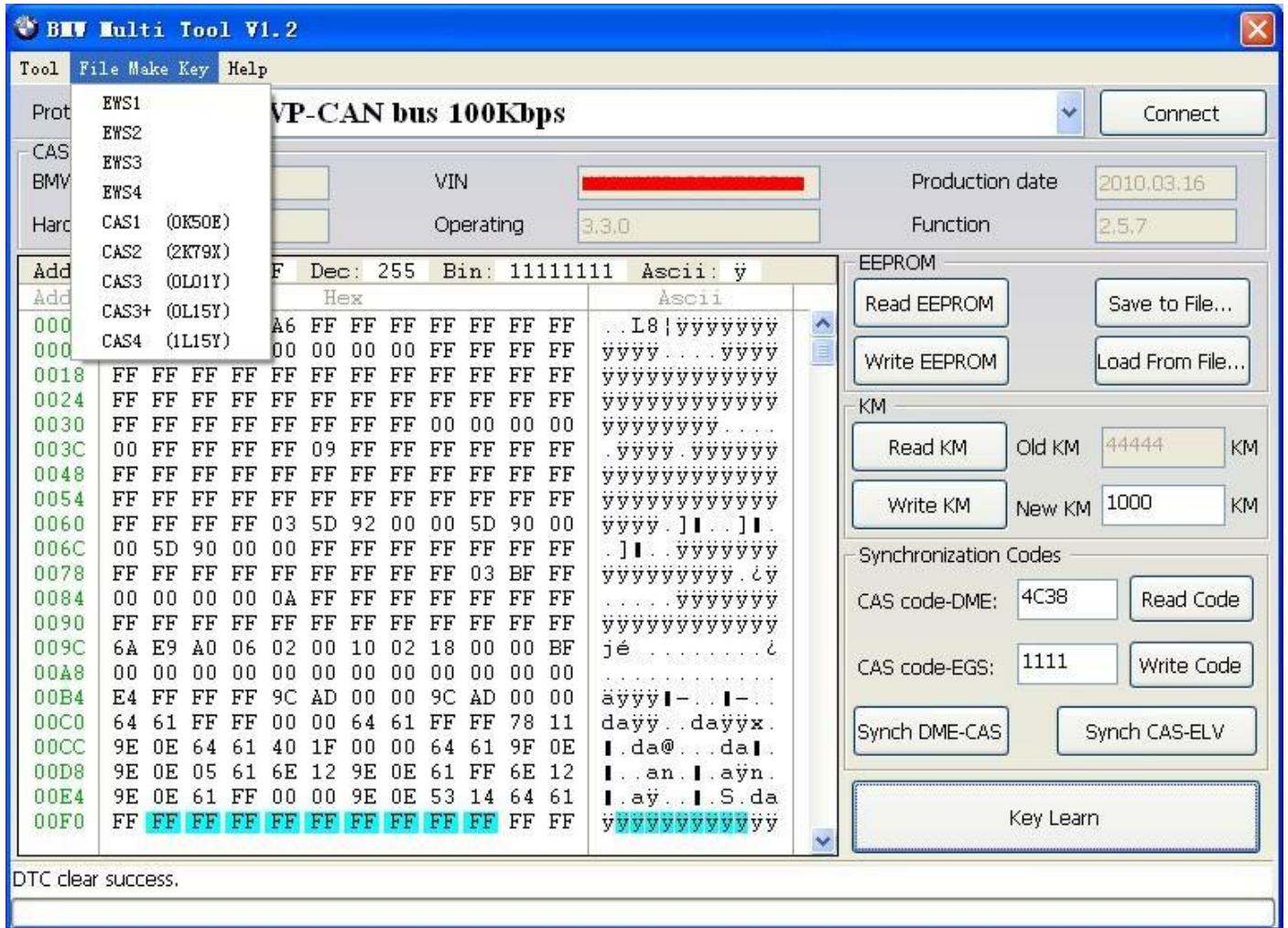
Disable Key

Clear Shadow

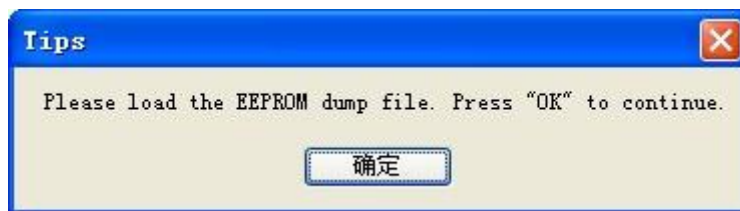
**Function introduction:**

1. **Get Key Info:** With this function you can get the key cutting, remote frequency, and key data.
2. **Save Key Info:** Save the read key info.
3. **Load Key Info:** Load the saved key info. To see the key data and prepare for write key info.
4. **Write Key Info:** Write the loaded key info into CAS system.
5. **Make Dealer Key:** You can prepare dealer key after you get key info successfully. Also you should choose the key position.
6. **Add key:** Add the new dealer key into CAS system. Some CAS system needs this step to start the engine.
7. **Enable Key:** Insert a working key, choose the key position which you want to disable. The key position can't be same with the key in ignition.
8. **Disable Key:** Insert a working key, choose the key position which you want to enable. The key position can't be same with the key in ignition.
9. **Clear DTC:** Before prepare dealer key and after it you can use this function to clear DTC.
10. **Clear Shadow:** Before prepare dealer key and after it you can use this function to clear Shadow.

vii. File Make Key



1. Choose CAS or EWS type. It will tips you:





2. Load the choose EEPROM file you will get the make dealer key window:



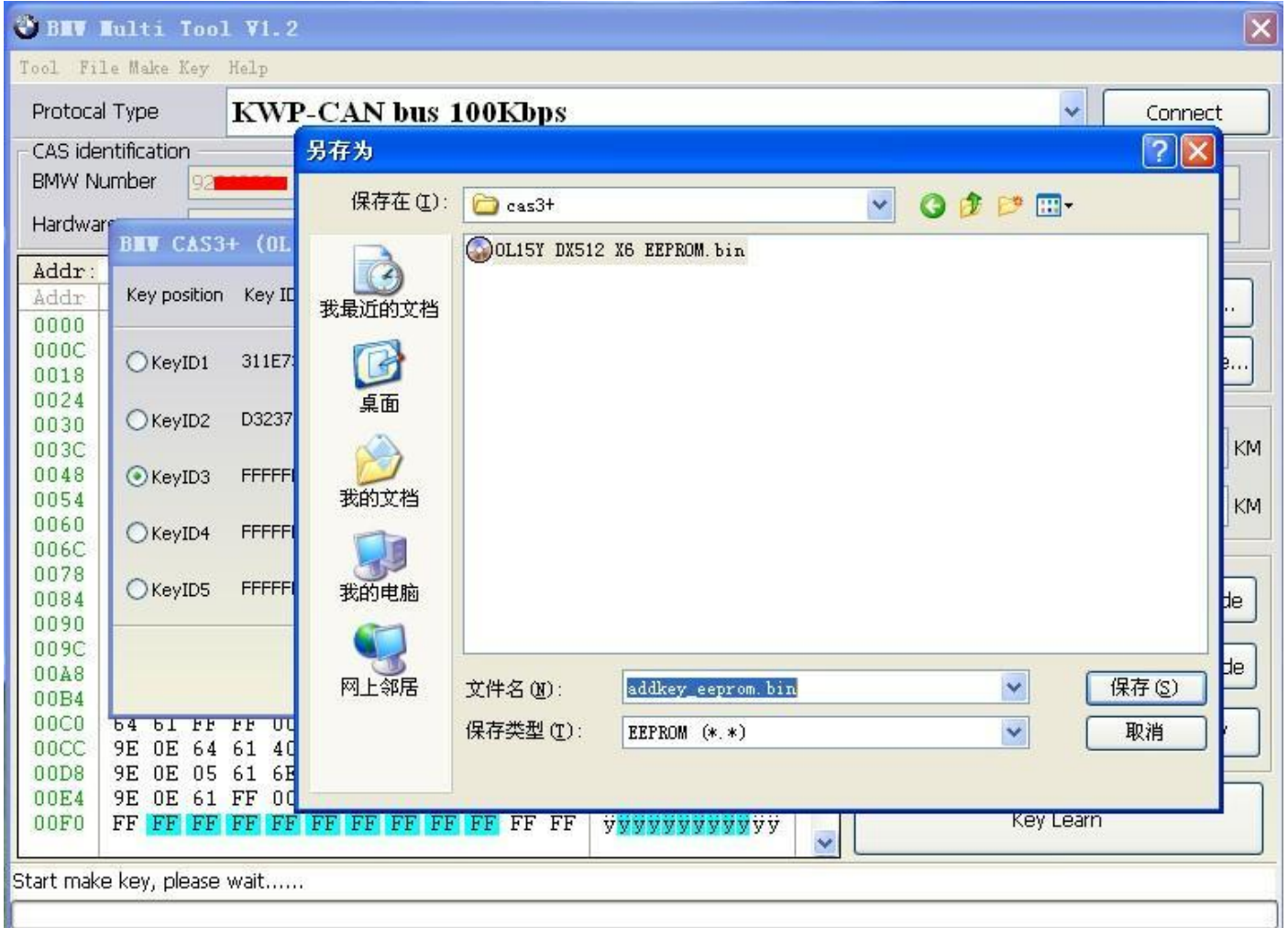


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- 3. Choose key position and press “Make Dealer Key” button. Flow the given tips to prepare dealer key. After succeed you can save the new EEPROM dump file.

For EWS1, EWS2, EWS3, EWS4, CAS1, CAS2, CAS3 type the prepared dealer key can start the engine directly.

For some CA3+ type you need to write back the new dump file into car.



- 4. CAS3 encrypt data, only OBDII prepare make key is support for CAS3 encrypt data.

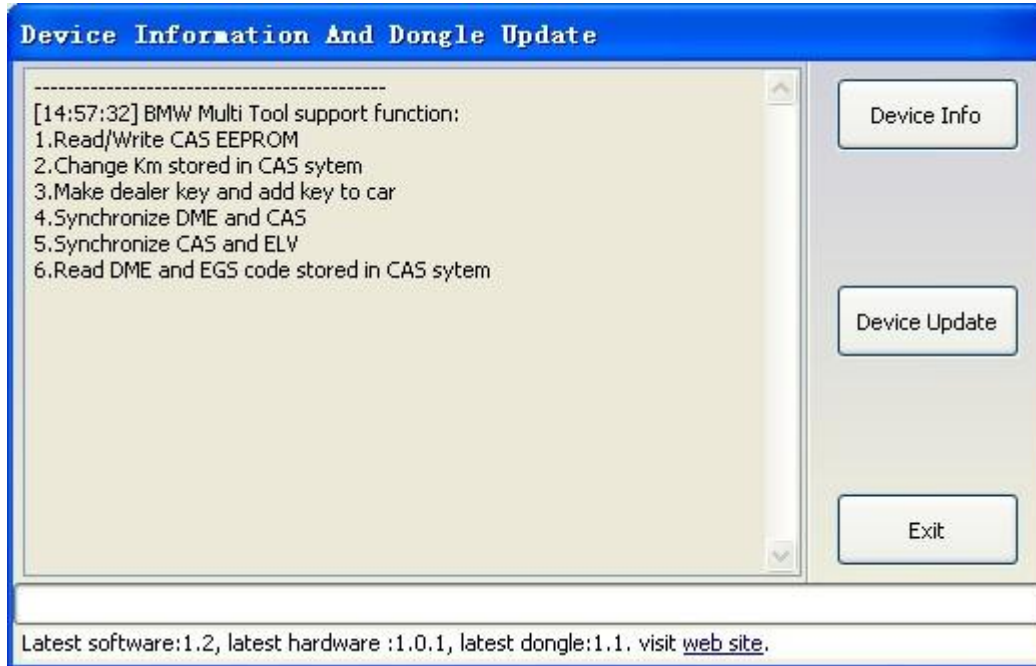




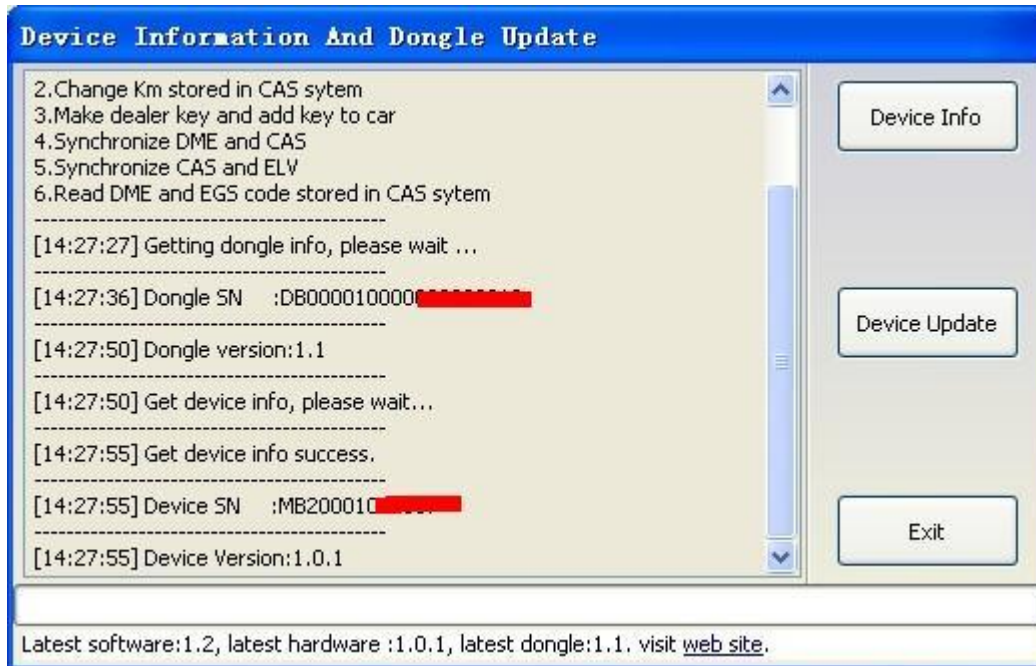
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viii. Device Update

Open this window after connect to internet. You can see the latest software version, firmware version, dongle version. You can go to our website for further information. After succeeded update device firmware, must reconnect the hardware to computer.



1. Device Info: Get dongle and hardware SN and version.



**2. Device Update:** This function can update the dongle and device.





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**Process to prepare dealer key:**

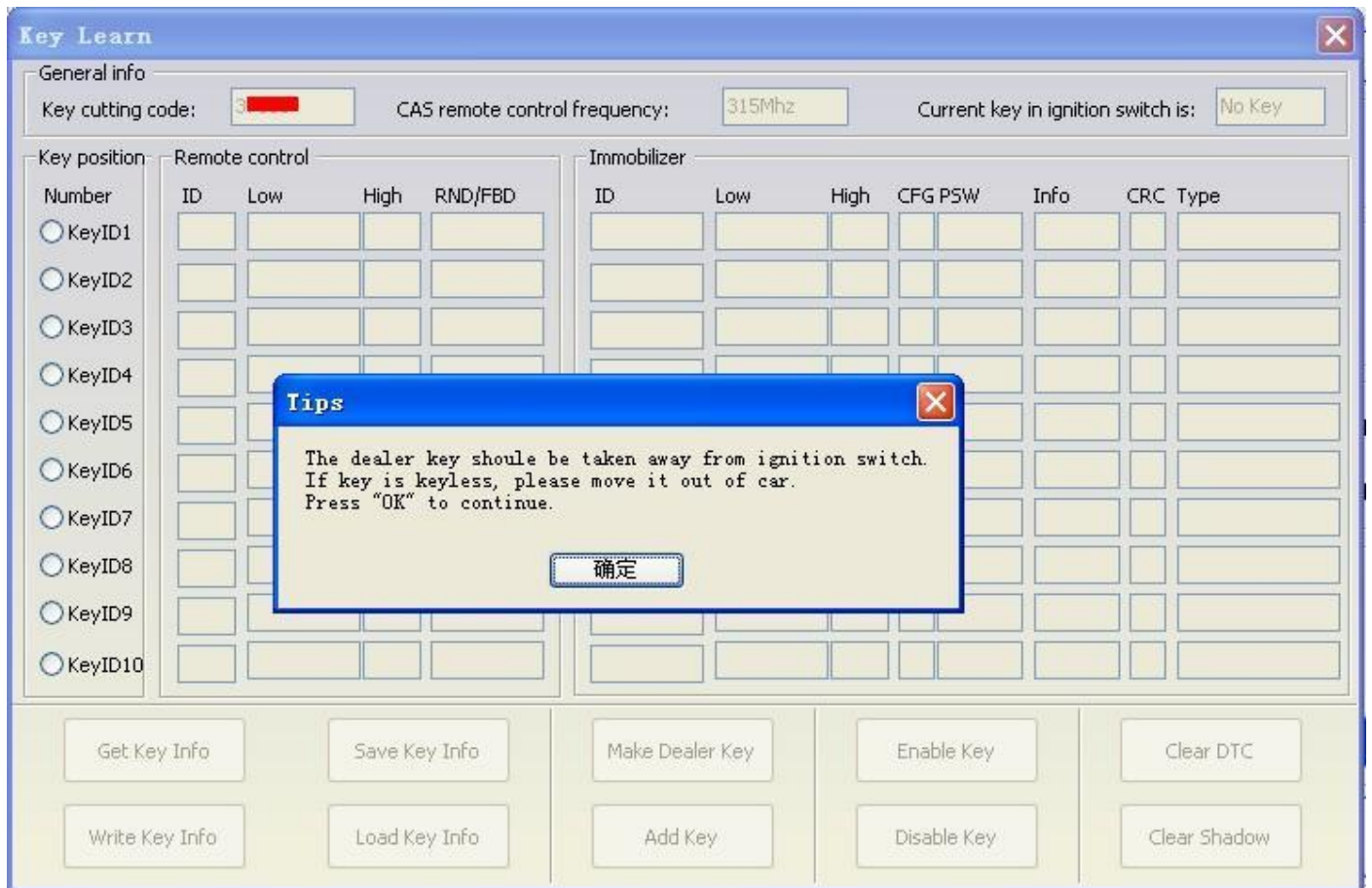
1. On main window choose “Connect” to auto detect the current car protocol and get the CAS info.
2. On main window choose “Read EEPROM” to read the CAS EEPROM file and save it.
3. On main window choose “Key Learn” button to get key learn window.
4. On Key Learn window choose “Get Key Info” to get the key info stored in CAS system.(picture 2).
5. Choose “Save Key Info” button to save the read key info for backup.
6. Check the connection between programmer and device. Keep connection while make key process.
7. Put new blank key into the center of programmer.
8. Choose the position where you want to suit the key.
9. Press “Make Dealer Key” to prepare dealer key. After succeed you will get (picture 3)

“Key make okay and locked. Please use it start the car. If can’t start engine, use “Add Key” function add the new dealer key to CAS system.” Once can start the engine, go to step 13.

10. Put the new dealer key into programmer. Use “Add Key” function to add the key to CAS system. After that you will get (picture 4):”New dealer key success written to CAS system. You can start engine with the new key now. If can’t please use the original working key first.”
11. Please return to main widow and use function “Synch DME-CAS” to synchronize DME (ECU) with CAS.
12. Use “Synch CAS-ELV” to clear wheel errors.
13. Enter to key learn window use “Clear DTC” and “Clear Shadow” function clear all error sin CAS system.

While prepare dealer key process. Once you get the tips like picture 1, remove the key from ignition switch, if key has keyless, take the key out of car.

Picture 1:







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Picture 2:

**Key Learn**

General info  
Key cutting code: 3 [redacted] CAS remote control frequency: 315Mhz Current key in ignition switch is: No Key

Key position	Remote control				Immobilizer							
	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	C979	7891304A	6EC9	2E520B31	70A5AB97	6F [redacted]	3715	C8	D25595	004B00	1E	PCF 7945 remote
<input type="radio"/> KeyID2	5E2A	FD6D94AF	D48C	643E1D66	036F6A97	9D1 [redacted]	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
<input type="radio"/> KeyID3	4CD0	89995983	19D3	08A8F0EF	E5A5B516	A1 [redacted]	D69B	0E	ADA836	002B00	4C	PCF 7936 transpc
<input type="radio"/> KeyID4	6F10	E8122696	30CF	24602665	1FB6B516	846 [redacted]	F8F1	08	D433AC	002B00	A3	PCF 7936 transpc
<input type="radio"/> KeyID5	7D22	1FC38BE9									14	PCF 7936 transpc
<input type="radio"/> KeyID6	3BEE	4C42D7D1									E4	Unknown
<input type="radio"/> KeyID7	588C	7E74EEEE									71	Unknown
<input type="radio"/> KeyID8	BF56	828D34A1									68	Unknown
<input type="radio"/> KeyID9	8055	6E06DAE2	D8EC	73325755	FFFFFFFF	BE [redacted]	D8A1	C8	C5AEF4	007608	3C	Unknown
<input type="radio"/> KeyID10	86DA	35137491	D9ED	CB618D0B	FFFFFFFF	4AD [redacted]	A99C	C8	941D15	007608	85	Unknown

**Tips**  
Please use "Save Key Info" to save the original key information.  
确定

Get Key Info    Save Key Info    Make Dealer Key    Enable Key    Clear DTC  
Write Key Info    Load Key Info    Add Key    Disable Key    Clear Shadow

**Picture 3:**

### Key Learn

General info

Key cutting code: 3 CAS remote control frequency: 315Mhz Current key in ignition switch is: No Key

Key position	Remote control				Immobilizer								
	Number	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	C979	7891304A	6EC9	2E520B31		70A5A897	6F	3715	C8	D25595	004B00	1E	PCF 7945 remote
<input type="radio"/> KeyID2	5E2A	FD6D94AF	D48C	643E1D66		036F6A97	90	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
<input type="radio"/> KeyID3	4CD0	89995983	19D3	08A8F0EF		E5A5B516	A1	D69B	0E	ADA836	002B00	4C	PCF 7936 transpc
<input type="radio"/> KeyID4	6F10	E8122696	30CF	24602665		1FB68516	84	F8F1	08	D433AC	002B00	A3	PCF 7936 transpc
<input type="radio"/> KeyID5	7D22	1FC38BE9	F721	B387FD40		E5A5B516	60	5E90	08	B12E96	002B00	14	PCF 7936 transpc
<input checked="" type="radio"/> KeyID6	38FF	4C42D7D1	9D8C	03BC7A77		FFFFFFF	29	705D	C8	48F534	007608	E4	Unknown
<input type="radio"/> KeyID7												71	Unknown
<input type="radio"/> KeyID8												58	Unknown
<input type="radio"/> KeyID9												3C	Unknown
<input type="radio"/> KeyID10												85	Unknown

**Tips**

Key make okay and locked. Please use it start the car.  
If can not start engine. use "Add Key" function add the dealer key to CAS system.

确定

Get Key Info

Save Key Info

Make Dealer Key

Enable Key

Clear DTC

Write Key Info

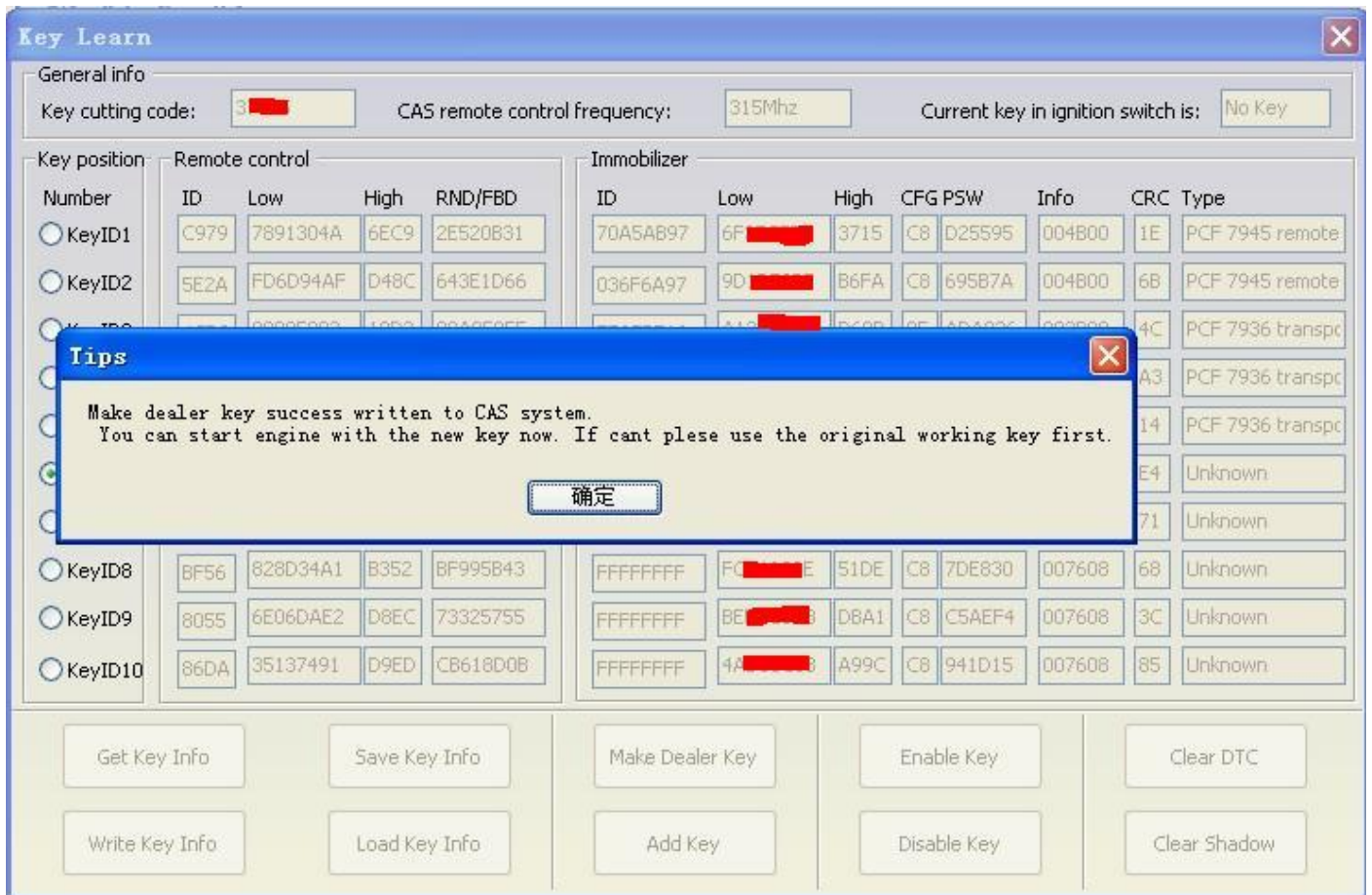
Load Key Info

Add Key

Disable Key

Clear Shadow

Picture 4:



**Warning: Make sure connect dongle to compute before run the software.**

## 5. Troubleshooting

### 5.1. “Device not connected” Error



**Information:** Hardware not connected to PC with USB port.

**Solution:** Plug device to USB.

## 6. Warranty and Service

### 6.1. Limited One Year Warranty

X-Horse warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one(1) year from the date of the original purchase, subject to the following terms and conditions:

- This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
- X-Horse shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. X-Horse reserves the right to make changes at any time without notice.

### 6.2. Service Procedures

If you have any questions, please post at <http://www.x-horses.com/forum/>